

## COMPUTER UPGRADE and RATE CHANGES

On December 30, 1983, SPCC's IBM 4341 central processor was upgraded from a model L1 to a M12. The upgrade consisted mainly of two significant improvements:

- a) an 80% increase in processing power (cycle time), and
- b) an increase of 4 megabytes (million) of memory bringing the system total to 8 megabytes.

Over the weekend of January 1st the new system was benchmarked against its predecessor. Comparative performance checks were done on the three operating systems (DOS/VSE, MUSIC and CMS (includes SAS)). After summarizing findings it was ascertained that the central processor performance had, on an average, improved slightly more than more 80% across the board. Hence, the new rate of \$9.00 per minute for central processing was established. This new rate assures that computing will not increase for users as a result of the system upgrade.

Through the integration of virtual and overhead central processor time into our charging algorithm, a further improvement has been made for CMS users. Here users will experience an approximate 20% improvement on cost/performance (more so, on products such as NOMAD, PROFS and SCRIPT).

Additional Rate Changes

## 1. Differential Off-Hour Rates.....

Effective January 1, 1984, SPCC instituted differential off-hour rates for work done outside the prime shift. Computer processing performed after 5:00 pm daily (Monday thru Friday) and all Saturday processing will be eligible for these reduced rates. Users doing their processing during these off-hours will receive a 25% reduction on three billable components: Central Processor Time, High Speed Input/Output (disk and tape), and Connect Time.

Off-hour differential rates are shown below:

## University Accounts.....

	New Rate Standard Charge	New Rate Off-Hour Charge
Computer Resource		
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Central Processor	\$9.00	\$6.75
Disk/Tape I/O	\$.0012	\$.0009
Connect Time	\$2.00	\$1.50

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## Non-University Accounts.....

Computer Resource	New Rate Standard Charge	New Rate Off-Hour Charge
Central Processor	\$12.00	\$9.00
Disk/Tape I/O	\$.0016	\$.0012
Connect Time	\$2.75	\$2.00

SPCC plans on installing a "Batch Monitor" within the next few weeks to facilitate 'prime time' routing of batch work for off-hour scheduled processing. Look for an announcement regarding this on the CMS and MUSIC news facilities.

2. Differential Disk Storage Rates.....  
Effective January 1, 1984, SPCC instituted differential disk space rates which are especially applicable to large disk space users. Our standard disk storage charge, as you may recall, is \$.000018/byte/month (\$18.00/million bytes/month). This rate still holds true for disk space utilization up to the established first-level ceiling of 10 megabytes, then the rate is decreased to \$14.00/million bytes/month. This rate then holds true again until the second-level ceiling is reached, etc. (see table below).

Note: For accounting purposes, disk space differential rate eligibility will be based on USERID (not account number).

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Disk Space  
Differential Rate  
Table

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Differential Category	Megabyte Rate	Illustration applying new rates to various levels of disk space utilization
First 10 Megabytes	\$18.00	A USERID having 25 megabytes of disk space would be charged \$180 for the first 10 megabytes and \$210 for the next 15 megabytes (total charged would be \$390).
Next 15 Megabytes	\$14.00	
Next 25 Megabytes	\$10.00	
Next 50 Megabytes	\$6.00	
> 100 Megabytes	\$3.00	

3. CMS Archiving Rates.....  
SPCC's CMS archiving rates have now been set and users taking advantage of this facility will be charged \$3.00 per megabyte (or portion thereof) stored per month. Note: This rate is a 83% reduction to the standard 'active' disk space rate.

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### WINTER QUARTER SHORT COURSES

The St. Paul Computer Center will be offering the short courses shown below during the winter quarter. The User Orientation presentation introduces new and prospective users to the SPCC facility. Following a brief description of the hardware and software available at SPCC, a short tour of the computer center will be given.

The SAS course will cover the Statistical Analysis System (SAS), a comprehensive statistical package available on the IBM 4341 computer at SPCC. In addition to statistics, SAS provides software tools for data storage and retrieval, report writing, general programming, and graphics.

Beginning this quarter, a computer-based training package for SAS will be part of the course. Users not attending the short course may also have access to this self-study course. Check with Michele Burlew to obtain more information on its use or to obtain the handout "Using CBT for SAS".

The MUSIC course will cover the McGill University System for Interactive Computing, an interactive operating system called MUSIC. The MUSIC operating system allows one to edit and save files, submit batch jobs, or run jobs interactively.

The CMS course will introduce the Conversational Monitor System, an operating system that allows one to edit and save files, submit batch jobs, and run jobs interactively. The CMS editor XEDIT offers many more options and capabilities than the editor for MUSIC. SAS and NOMAD (a new data base management system) may be accessed interactively through CMS.

The NOMAD demo introduces a Data Base Management System now available at SPCC. NOMAD is a fourth generation language, which may be used for data management, retrievals, application programming, report writing, and graphics.

All courses will be offered on the St. Paul campus. The short course schedule for the winter quarter is as follows:

SHORT COURSE NAME	DATE	TIME
User Orientation	Feb 9 (Th)	3:00-5:00
Introduction to CMS	Feb 13,15 (M,W)	3:00-5:15
Introduction to MUSIC	Feb 14,16 (T,Th)	3:00-5:15
SAS (Statistical Analysis System)	Feb 20,22,24 (M,W,F)	3:00-5:15
Introduction to CMS	Feb 28,Mar 1 (T,Th)	3:00-5:15
Introduction to MUSIC	Feb 29,Mar 2 (W,F)	3:00-5:15
SAS (Statistical Analysis System)	Mar 5,7,9 (M,W,F)	3:00-5:15
Introduction to NOMAD	(By arrangement)	

The User Orientation will be held in B35 COB (St. Paul Campus), with no registration required. To register for the other courses shown above please obtain and complete

a short course registration form from SPCC (373-0987; 50 Coffey Hall) and return it to the main office, 50 Coffey Hall, prior to the start of the class. Most short courses have a modest fee associated with them and require full payment before the class begins. Sorry, no refunds are made after the class begins.

If you have questions about short courses, their cost, or registration, please call Mel Sauve or Diane Suski (373-0987).

If you have a group of 6 or more people interested in any of the short courses, SPCC can schedule a class just for your group. Please contact Mel Sauve at 373-0987 to make the necessary arrangements.

## S A S   N O T E S

### SAS Disk Migration

The major change in disk space utilization announced in our last newsletter has been delayed. The change will take place during winter quarter. Users will be contacted by SPCC staff when it is time to migrate.

### SAS 82.3

SAS 82.3 has been installed at SPCC and will be available as the FUTURE version of SAS by the time this newsletter is distributed. In mid February, SAS 79.6 will become the past version, and SAS 82.3 will become the current version.

As we mentioned in the last newsletter, the documentation for the new version is:

**SAS User's Guide: Basics**, 1982 Edition

**SAS User's Guide: Statistics**, 1982 Edition

Some of the new procedures documented in **SAS User's Guide: Basics** are:

<b>APPEND</b>	adds observations to the end of a SAS data set
<b>CALENDAR</b>	produces summary and schedule calendars
<b>FORMS</b>	prints labels and forms (supplemental procedure added to The SAS library)
<b>TABULATE</b>	produces descriptive statistics in tabular form
<b>TRANPOSE</b>	transposes a SAS data set

Some of the new features documented in SAS User's Guide: Statistics are:

**REG**            a new procedure for general purpose regression, including diagnostics

**RSREG**        a new procedure for response-surface regression  
                 (supplemental procedure added to the SAS library)

**GLM and ANOVA** have many new means comparisons methods

**PRINCOMP**    a new procedure for principal components analysis  
                 (supplemental procedure added to the SAS library)

**STEPDISC**    a new procedure for stepwise discriminant analysis  
                 (supplemental procedure added to the SAS library)

**TREE**         a new procedure that prints tree diagrams of hierarchical clusterings

**CLUSTER**     has been rewritten to use Ward's method, the centroid method, or the  
                 average linkage on squared Euclidean distances method. Two of these  
                 methods can take far less space and CPU time to run than the method  
                 implemented in SAS79.

**MATRIX**      has several new functions.

#### Graphics

Users who own an IBM PC with the asynchronous communications interface, the color graphics interface and a color monitor may use their PC as a graphics terminal with SAS 82.3. The SAS Institute has distributed a group of BASICA programs which will turn the IBM PC into a graphics terminal in either high or medium resolution graphics modes. Images may be saved on disk and replayed at a later time. The device drivers make good use of the higher level graphics capabilities of BASICA (line, circle, paint etc.). This results in short data transmission time for most images. More detailed written information will become available later. Users who would like to try this feature now should ask for information at the help desk.

#### COMPUTER-BASED TRAINING NOW AVAILABLE FOR SAS

In February, St. Paul Computer Center is installing the CRWITH computer-based training package for SAS. This is a self-study course that lets you review the fundamentals of SAS and learn some of its more advanced features. This is done by using a computer-based training (CBT) system. With the CBT system, you are instructed in SAS. You will be asked questions to both reinforce the instruction and to give you

the "hands-on" feel of using SAS. Much of the course involves writing SAS statements and programs.

Information presentation under the CBT system is given on the terminal. You log on to the computer and invoke the CBT system when you have time available for self-study. You are presented with narrative text on the terminal screen or hard-copy terminal and, when satisfied that you have understood the topic, you can move ahead to the next topic.

The course is intended primarily for end users, non-data processing people who will be doing their own statistical analysis and/or report writing. The length of the course will depend upon whether you are already familiar with SAS and can skip the introductory sessions, and how deeply you need to go into SAS. Many of the later sessions are elective, depending on your individual needs.

Use of the CBT system for SAS will be the basis of the Center's SAS short course offering. However, you do not need to attend the short course to use it. Check with Michele Burlew to obtain more information on its use or to obtain the handout "Using Computer-Based Training for SAS".

#### N O M A D   N E W S

As we announced in the last newsletter, NOMAD is a comprehensive database management and reporting language now available at SPCC under the CMS timesharing system. Since its installation, numerous applications, large and small, have been implemented. Users indicate that they are finding NOMAD easy to learn and use.

NOMAD offers many time saving tools that generate NOMAD procedures for the programmer. Some of the procedure generating tools are:

MAKEDUMP / MAKELOAD - Generates procedures to dump and load databases to and from external files.

MAKEFORM - Allows interactive building of form descriptions.

MAKEM - Generates screen driven update procedures.

MAKEUP - Generates non-screen interactive maintenance procedures.

CHOICE - Used in a procedure to produce screens to choose among various procedures to run.

These tools along with others are documented in the NOMAD2 Tools Manual which is available in Room 50 Coffey Hall for \$3.00.

There is also a NOMAD2 Tutorial available for the beginning NOMAD user. The user is led through sample terminal sessions using an education database and also in creating a new database. This document introduces the LIST command and the basic database management commands in an easy to follow interactive style.

#### PROFS - (PROFESSIONAL OFFICE SYSTEM)

Although PROFS has been available to a number of departments for some time, SPCC has just installed the newest release and is now making it available to its entire clientele.

To gain access to the PROFS software use the GET command as follows:

get profs

PROFS provides a comprehensive and easy-to-use set of office automation functions for the executive, professional and secretary. PROFS is an Electronic Mail facility and much more. From a single terminal you can obtain and distribute information with only a few key strokes. Other facilities of PROFS allow you to manage your most valuable resource - your time.

#### PROFS Highlights:

1. SENDING MESSAGES AND NOTES

Used to send short messages and notes to other PROFS users.

2. REVIEWING IN-BASKET (INCOMING MAIL)

Used to read and handle your incoming mail (electronic correspondence) received via PROFS.

3. SCHEDULE APPOINTMENTS

Used to maintain your personal calendar. You may also view and/or maintain the calendar of other PROFS users when authorized to do so. May also be used for room scheduling.

4. SETTING REMINDERS

Used as an automatic facility to remind you about upcoming meetings, appointments, etc.

5. DOCUMENT PREPARATION

Used to create formal documents, memos, and letters and to send them to other PROFS users.

6. SEARCH AND RETRIEVE DOCUMENTS

Used to find and retrieve documents which you sent or received from other PROFS users.

7. DOCUMENT' PREPARATION AIDS

Has spelling checks, table of contents facility and a number of other composition aids.

8. EXTENSIVE 'HELP' FACILITY

PROFS has an extensive 'HELP' facility built in making it easy for a user with no previous knowledge of computers to productively use.

To acquaint the user with PROFS and its operational use, the following manuals are available:

Getting Started with PROFS	(SH20-5602)	\$13.50
Using PROFS	(SH20-5604)	\$28.00

**GLIM - New Statistical Package Installed**

Installed recently, GLIM (Generalized Linear Interactive Modeling) is a product distributed by the Royal Statistical Society in Oxford, England and is widely used throughout the world. GLIM is a program designed to facilitate the fitting of generalized linear models. It contains routines for specifying and fitting desired models, reading data, transforming data, and displaying results through listings and graphic diagrams. GLIM is available under CMS in both interactive and batch modes.

**Model Fitting Facilities:**

1. Linear regression with quantitative independent variates.
2. Fitting linear models with factors and covariates.
3. Fitting and testing loglinear or linear models for discrete data including binomial or multinomial data and contingency tables with responses and/or factors.
4. Linear models on a logit scale for multiway tables of proportions.
5. Probit analysis of dose-response curves/surfaces.
6. Estimation of variance components from independent mean squares.
7. Inverse-polynomial response surfaces with gamma errors.
8. Models for survival data based on the exponential distribution.
9. Permits mixed quantitative-qualitative terms in linear models to enable separate, parallel or common regressions to be fitted.
10. Through transformations one can produce the right error structure in the data and yet control the additivity of fitted effects.

**Other Facilities:**

1. Input of Data.....Fix or free format. Data may be entered interactively or may be previously stored.
2. Calculations.....Arithmetic operations on vectors and scalars; suffices; functions include pseudo-random-number generator, standard arithmetic functions and relational operators; sorting.



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3. Scatter Plotting...Up to nine variates simulateously; automatic scaling; selection of subsets.
4. Program control....Definition and use of macros as named blocks of instructions; use of macros in looping and branching; argument substitution in macros.
5. Diagnostics.....Extensive internal checks for faults; full diagnosis and suggested remedies.

To acquaint the user with GLIM and its operational use, the following is available:

Introductory Notes on GLIM (contains reference card)	\$3.50
The GLIM System User Manual	\$16.00
CMS Online Help Facility (Type: "HELP UM GLIM")	N/C

### SPCC PUBLISHED DOCUMENTS

The following documentation is available from SPCC.

Publication	Cost	Description
MUSIC General User's Reference Card	\$ .50	A xeroxed version of the MUSIC SYSTEM Reference card, containing a brief description of the MUSIC commands (5 pages).
SAS Seminar Handout	\$3.50	A SAS handout filled with examples and illustrations showing how to use the DATA step, with its many statements, and many Proc steps (104 pages).
SAS Procedures Handout	\$ .75	A list of the SAS procedures with a brief description of the capability and use of each (15 pages).
MUSIC SCRIPT Manual	\$8.00	An introduction to the MUSIC operating system and to SCRIPT (126 pages).
MUSIC Primer	\$5.00	An introductory guide to assist users of the MUSIC system (129 pages).
SPCC Facility Introduction		An introduction to the St.Paul Computer Facility (22 pages) - no charge.
CMS Quick Reference Guide	\$ .25	A brief summary list of many frequently used CMS and XEDIT commands (3 pages).
Beginner's Guide to CMS -Full SScreen	\$2.00	An introduction to CMS for users who are connecting to the IBM system from a video display terminal. There are sample terminal

sessions along with explanations of the displays (59 pages).

Beginner's Guide to CMS -Line at a Time	\$1.00	An introduction to CMS for users who are connecting to the IBM system from a DEC Writer, Hazeltine, Data Media, or other Line at a Time terminal (31 pages).
CMS Reference Guide		A soon to be released guide to using CMS at SPCC. This covers more material and in slightly greater depth than the Beginner's Guides. Price - not yet determined.
Guide to using the IBM PC as a terminal to the IBM 4341	\$ .75	A guide to creating a bootable diskette with the programs necessary to use the IBM PC as a terminal to the 4341. Uploading and downloading files is also discussed (19 pages).
NOMAD Tutorial (Terminal Session/Films)	\$2.00	An easy to read and follow example oriented text of the basic NOMAD commands for reporting and database creation (39 pages).
VM/SP Archival Storage Subsystem User's Guide	\$2.00	Provides an introduction to the ARCHIVE system available under CMS as well as documenting all of the commands and options. A must for serious users of the ARCHIVE system (27 pages).

For a complete list of the publications that are available see the SPCC Facility Introduction.

## STATISTICAL CLINIC

The Statistical Center provides statistical consulting to researchers at the University of Minnesota. The services of the Center are available to the University community, generally without charge. Assistance on appropriate experimental designs and methods, data analysis, and the interpretation of results are part of the mission of the Center.

The Statistical Clinic, located in room 125g, Classroom Office Building, on the St. Paul Campus, is staffed by graduate students of the School of Statistics, and supervised by faculty members of the Applied Statistics Department. It is intended to provide an initial contact between the Center and students with research problems. Many statistical problems can be handled completely by the personnel in the Clinic; however, more difficult problems will be referred to an Applied Statistics faculty member.

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The hours of the Statistical Clinic for Fall Quarter 1983 are:

Monday : 8:00-5:00  
Tuesday : 8:00-3:30  
Wednesday: 8:00-5:00  
Thursday : 8:00-3:30  
Friday : 8:00-5:00

Room: 125g COB  
Phone: 376-3845

### ACCESS TO FACILITIES

#### ST PAUL COMPUTER CENTER

SPCC hours, locations and telephone numbers:

Main Office	: 90 Coffey Hall	373-0987	8:00 am - 4:30 pm
Users Room, and	: 90 Coffey Hall		7:00 am - 10:00 pm M-F, and
Computer Hours (1):	90 Coffey Hall		8.00 am - 4:00 pm Sat
Help Line and Desk	: 90 Coffey Hall	376-4602	10:00 am - 12:00 pm
			1:00 pm - 4:00 pm
Data Entry	: 6 North Hall	376-9222	8:00 am - 4:30 pm
Interactive Dialup Number:		376-5820	

(1) After hour and Saturday access to the Center may be achieved by using the tunnel passageway from the Student Center.

#### MERITSS SYSTEM CONNECTION TO SPCC

Users can now gain access to the IBM 4341 computer system at SPCC through the MERITSS System. There are now six ports dedicated to this type of communications traffic. Those wishing to utilize this type of access can obtain the handout named "Using SPCC's IBM Computer from the MERITSS System" from our main office (1 page, no charge).

#### CLASSROOM OFFICE BUILDING INTERACTIVE INSTRUCTIONAL LAB HOURS

	Doors Unlocked -----	Doors Locked -----
Monday -- Friday	8:00 am	10:00 pm
Saturday	9:00 am	1:00 pm

Should you be the last person out of the Lab during the hours shown above, please leave the doors unlocked (SPCC personnel are responsible for locking doors at the designated times). Thank you.

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